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ABSTRACT

This Fastback contends that educators are in the memory business, that memory is probably our most maligned faculty, that forgetting is a fact of life, and that overall memory skills can be learned. The booklet addresses the following questions: How justified are people's complaints about memory? How much is myth and how much is fact? What memory strategies can we learn and practice? and How can students be helped to learn memory techniques. Following an introduction, the publication is organized into six parts. The first part, "Don't Myth-Interpret Your Memory," provides a quiz that seeks to separate fact from fiction. Part two, "What is Memory?" discusses short-term and long-term memory and how memories actually form, and it provides an initial memory activity. Mnemonics, internal memory strategies, remembering names and faces, and external memory strategies are the subject of part three, "Memory Principles." The fourth section, "Helping Students Remember," covers teaching memory techniques to young children and describes the role of mnemonics in the teaching of literature. Section five, "Don't Be an Absent-Minded Educator," discusses the benefits of memory enhancing skills and goals. Contains 15 resources. (LL)

365 FASTBACK

Memory Enhancement For Educators

Evelyn B. Kelly

PHI DELTA KAPPA EDUCATIONAL FOUNDATION

EVELYN B. KELLY

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Memory Enhancement for Educators

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Introduction

Educators are in the memory business. Our livelihoods depend on it. From preschool teachers to college professors, we are called on to remember a variety of facts, dates, names, and so on. Educational administrators need good memory systems to recall names, information, and appointments.

We also expect our students to remember. They must recollect names, dates, facts, and information in order to write reports and essays and to participate in intelligent discussions. Tests measure their ability to recall and retrieve remembered material.

Yet, forgetting is a part of life. Experts say that we forget 99% of everything that enters our heads. Actually, we may be thankful this is true; otherwise, every impression, thought, or idea could remain with us. Books on memory tell of the unhappy Russian, Soloman Vermianoff, a journalist with near-perfect memory. He had so much on his mind that eventually he could no longer function in normal life. He finally joined a carnival – the only place he could use his unusual memory.

Memory is probably our most maligned faculty. People complain about their memories more than their looks. How justified are these statements about memory? How much is myth and how much is fact? What memory strategies can we learn and practice? How can we help our students learn memory techniques?

This fastback addresses these questions and includes a list of resources.

Don't Myth-Interpret Your Memory

David, a 35-year-old middle school band director, works part time as a church organist. He completely forgot a wedding at which he was supposed to play. He is afraid he is losing his memory.

Martha, age 62, could retire but would like to continue teaching until age 65. She left a pot roast on the stove and started a kitchen fire. She wonders if her retirement should be to a nursing home.

Jack, age 40, went from his classroom to the school office to get some attendance slips. He returned with two books and lots of gossip but forgot the attendance slips.

These educators were disgusted with themselves and cursed their bad memories. Are they victims of bad memory and on the way to mental decline? Research says no!

None of these people had anything wrong with their memories – only untrained minds with poor memory systems.

Take the following quiz to see if you myth-interpret your memory. Answer *true* or *false*.

1. Memory skills decline as people get older.
2. A person's health does not affect memory.
3. Education can affect memory skills.
4. People with high intelligence (high IQ) always have good memories.
5. A person's self-concept affects memory.

6. Alzheimer's disease, a condition that robs people of their memories, is inevitable with aging.
7. Motivation and effort affect memory.
8. Memory can be improved by devices and strategies.
9. Age is related to memory.
10. The word "mnemonics" means memory or remember.

How Well Did You Do?

1. *False*. Passing years do not mean a decline in memory. A healthy mind can continue to remember and learn to the end of life. Eighty percent of older adults are alert and can learn.

Some researchers believe that a person's ability to remember is related to his or her expectations. Educators can identify with the role of expectations and so-called self-fulfilling prophecies of students who label themselves as poor learners and, indeed, become poor learners. We may do the same thing with memory. A person who tells himself over and over that his memory is getting bad creates the same type of self-fulfilling prophecy.

Jokes about memory are legion. For example: *There are three things about getting old: One is that you lose your memory and the other two – uh – I forget.* Unfortunately, such humor merely adds to the creation of this self-fulfilling prophecy.

2. *False*. Health does affect memory. Malnutrition, pain, and certain medications can affect memory. One basic recommendation for improving and maintaining good memory function is eating a balanced diet and exercising regularly. Even a cold, especially if you take antihistamines that affect alertness, can drain you of mental energy.

Also, the effect of depression on memory is well-documented but not well-known. People who are depressed are forgetful and do not care. In some cases, individuals who initially were diagnosed with Alzheimer's or other memory problems later were discovered to be suffering from depression, which could be treated.

3. *True*. Education and memory skills are highly correlated. Education gives us more experiences and ways to learn new things.

4. *False*. High IQ itself is not enough. Intelligent people often do have good memories. But there's also the stereotype of the absent-minded professor, who forgets the simple things of everyday living. One explanation of absent-mindedness is that we remember what we want to. The absent-minded professor may remember complicated theories and other esoterica that interest him; picking up a grocery item may be far down on his list of priorities.

5. *True*. If you have a low opinion of your own worth and think your memory is bad, you may not put forth the effort to remember.

6. *False*. Alzheimer's disease is present in only about 5% of the population over age 65. Alzheimer's disease is a condition where the neurons, the basic cells of the brain, form tangles called neurofibrillary tangles or plaque that interfere with memory. People worry about Alzheimer's when they forget some things. For example, George started to pay for a shirt and found he had left his credit card at home. An Alzheimer's patient probably would not even remember that he had a credit card.

7. *True*. One of the principles of memory improvement is that you must want to improve.

8. *True*. The purpose of this fastback is to provide some of those strategies.

9. *True*. Age does have a role in memory. By age seven, children are equal to adults in their abilities to remember five to ten pieces of information for a short period of time; but their long-term memory lags behind. By 12 to 15 years of age, children may demonstrate memory capacities similar to those of college students. However, just as with athletic ability, people vary greatly in their memory abilities regardless of age.

10. *True*. The *m* in the Greek word is silent.

What Is Memory?

We use principally two types of memory: short-term and long-term memory. An example of short-term memory occurs when you look up a number in a telephone directory and remember it long enough to dial. Short-term memory is very fragile. Long-term memory is our main storage memory. To reach this permanent and more stable memory, we must use the stored information often, or the information to be remembered must be very important to us.

How memories actually form is the subject of much research. A part of the brain called the *hippocampus* is vitally important to the process. Once the mind judges information to be worthy of long-term memory, the hippocampus issues some kind of order to remember. However, scientists are still debating how this action takes place.

At one time, researchers thought that the brain stored memories in patterns in a special memory bank, similar to the way a computer stores bytes of information. But memories are spread throughout the cortex, or outer layer of the brain. Damaging or removing portions of the brain may dim but not erase memories.

A new theory states that memories are stored more like a holograph, whose image appears three-dimensional. You can take a piece of the holograph and, by peering into only that piece, reconstruct the whole picture. Some scientists believe that a form of holographic process allows memory to spread throughout the brain by means of complex biochemical changes.

So far, most scientific advances have been in understanding how memories are recorded; but the retrieval of old memories remains largely a mystery. While the neurobiologists are researching the physiology of memory, the psychologists are observing behavior and memory. The pedagogy of developing applied memory skills lags behind.

An Initial Memory Activity

Here is a way to get started in exercising your memory. To complete this memory flexibility exercise, choose a partner. Let one person be Number 1 and the other be Number 2.

First, Number 1 calls to memory the items in List 1 and describes them to Number 2. Then Number 2 does the same with List 2, describing the memories to Number 1. Afterward, the partners can trade lists and repeat the exercise. Students of all ages enjoy doing this activity, which can be modified in many ways. You may add the color of the bus driver's hair, a best friend's mom's name, the type of soap powder the student's family uses, and so on. The possibilities are endless.

List 1

Mother's maiden name
The taste of lemon
First news of the explosion of the space shuttle
Riding a bike
Fragrance of a rose
Your favorite teacher

List 2

Color of toothbrush you use
Smell of rain
Tune and words to "Happy Birthday"
Last night's dinner
How a penguin walks
The smile of Mona Lisa

Memory Principles

Here is a riddle: No school teaches it; every school uses it; you can't get along without it. What is it?

The answer: Memory.

Can you remember a list of 20 or more words after hearing them just once? Can you repeat a 30-digit number after hearing it just once? Can you memorize a 50-page magazine so that you can describe each page?

These kinds of feats are performed on stage by memory "experts." To people who know nothing of memory systems and techniques, they seem to be amazing.

Kenneth L. Higbee, a professor at Brigham Young University, has written extensively on memory and teaches memory courses. He contends that most people can do such feats if they want to and are willing to practice the appropriate system. Of course, you may not want to go on stage or even remember a 30-digit number. The point is that these seemingly phenomenal memory skills are not beyond the reach of the normal memory.

Higbee's book, *Your Memory: How It Works and How to Improve It* (1988) is well-documented with research and chapter notes for the person who would like to delve into memory research.

Sharpening your memory skills means regular workouts. Just as pushups and jumping jacks keep the body fit and trim, mental cal-

isthenics make the mind more alert. Danielle Lapp, a Stanford University researcher, has taught memory courses to thousands. She says that most people can double their memory capacity by applying learning and memory techniques. To do so, the mind needs to shift from automatic to manual.

Lapp underlines the principles of memory as motivation, attention, concentration, and organization. While strategies and methods can increase overall memory, four underlying principles relate to attitude and philosophy:

1. You must want to learn.

Learning is the first phase of remembering. The ability to recall depends on the effectiveness of initial learning. If information is not learned in the first place, retention and recall will not be successful. For example, people get upset with themselves because they cannot recall names of people they have met. Probably, they did not really learn the names in the first place – at least not well enough to encode them into long-term memory. The short-term memory of a person's name heard over a handshake will not transfer automatically to long-term memory.

2. You must decide what you want to remember.

You cannot remember everything. You must decide what is important. Educators try to set frameworks for students and encourage them to see what is important and valuable. If information presented in class is boring to students, they will be less likely to discern the important from the unimportant. Consequently, the students may simply "cram" the information into the short-term memory and then forget it as soon as the test is over.

3. You must focus on the information.

Samuel Johnson once wrote, "The art of memory is the art of concentration." If you don't pay attention to something in the first place, you will not be able to remember it. According to Lapp, concentration means selecting, focusing, and analyzing the information to be

remembered. Creating a mental picture or making an association reinforces the memory. For example, Lapp suggests that the next time you have to remember an address for a short time, picture the street number as red graffiti on a white wall. Lapp says it works.

4. You must organize the information into meaningful categories. This area is where techniques or memory strategies are the most valuable. The entire science of mnemonics relates to organization, association, and the development of memory systems.

Mnemonics

Most teachers already use a few mnemonic devices to help students remember certain concepts. A common example is the mnemonic device for the five lines of a music staff, E-G-B-D-F, which can be remembered by the sentence, Every Good Boy Does Fine. Another mnemonic is HOMES, which is a way to remember the names of the Great Lakes: Huron, Ontario, Michigan, Erie, Superior.

Visual mnemonics are also valuable. Italy is easy to find on the world map, for example, when students remember that it is shaped like a boot.

There are other strategies that teachers may use to indelibly impress items into the minds of their students – and themselves. The goal of any mnemonic is to bridge the gap from short-term to long-term memory by creating a selective focus.

Memory skills call for the creative and unusual. The following principles are necessary for understanding how we remember.

Slap-in-the-face. We remember things that are outstanding. If you were in a hotel lobby and a person ran up and threw water on you, you might remember that hotel for a lifetime. You would repeatedly recreate the incident and its setting in your mind because it got your attention. Readers who are old enough can recount the exact moment when they heard of the assassination of President Kennedy, just as

many students now recall the circumstances when they first heard about the explosion of the *Challenger* space shuttle.

Adler (1986) calls this slap-in-the-face principle, "surprise seeing." Someone with blue hair sticks out in a crowd – and in your memory of that crowd.

Imaging. Children have vivid imaginations and mentally visualize unusual – thus memorable – things. Mental imagery recently has received a lot of positive press and is being applied to everything from management to athletics to healing. In imaging, people think visually – not just verbally – and let their imagination create moving scenes.

Association. When you visualize one scene, you then can link it to another scene. This is association. Lorayne and Lucas (1974) call this "imaginuity" and expresses it as a formula using the mnemonic, OAR: Observe-Associate-Review.

Internal Memory Strategies

Following are 13 internal memory strategies. An internal strategy is one that uses no outside helps, such as notes, but relies on memory alone.

1. Rote repetition

Some people depend on rote repetition as their primary learning tool. You use this technique when you mentally repeat a telephone number. If someone gives you a date to use in a report, and you are going to remember it only long enough to get to where you can write it down, you repeat it to yourself several times.

This strategy is good for short-term memory but weak for long-term memory. Younger students seem to be much more adept at rote memory than older students. An example of rote memory is learning the multiplication tables.

2. Verbal elaboration

Words or names can become part of a memorable sentence that builds or associates these words. When you learned the most famous

of these of these verbal elaborations, E-G-B-D-F (Every Good Boy Does Fine), to remember the lines of the treble clef, your teacher was following a basic memory rule. You probably do not remember the letters of the bass clef as easily because no one made a mnemonic sentence for them.

Acronyms serve a similar purpose. An example is AIDS, which stands for Acquired Immune Deficiency Syndrome. Acronyms make words themselves, rather than standing in for sentences or phrases.

You can use verbal elaboration to remember almost anything. Follow these principles to be successful:

- Look for meaningful words embedded in the information you are trying to learn.
- Add information that creates a phrase that is easy to remember.
- Make an acronym or sentence of the first things you want to remember. For example, your students may remember the planets in order from the sun if they think of the sentence: Meek Violet Extraterrestrials Make Just Such Unusual New Pets. The planets in order are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto.

  Do you want to remember the colors of the spectrum in order? Try ROY G. BIV: red, orange, yellow, green, blue, indigo, violet.
- Make a rhyme and you have a powerful mnemonic: "In fourteen hundred ninety-two, Columbus sailed the ocean blue" or "Thirty days hath September . . ."

If you are going to interview for a position and you want to remember your best attributes – Supervisory experience, Creativity, Organization, hard Work, and Likability – take the first letter of each important word and create a memorable acronym: SCOWL.

3. Types and categories

Put like things together so that logic can assist memory. For example, the whole system of biological classification is based on the idea

of grouping like things in categories. To introduce biological classification, mix 10 types of seeds together. Give each student a spoonful of the mixture on a sheet of white paper. Ask students to sort the seeds according to structure, color, size, or other feature.

Here is another interesting activity to use with students of all ages. Tape 7 to 10 small objects onto a poster board. Examples: scissors, tape, pencil, thumb tack, penny, ribbon, toothbrush, soda can, comb. Have the students observe the array for one minute, then conceal the board and ask them to write down the items they remember. Afterward, ask them how they went about re. embering the items. Some will say they took a mental picture, others will describe repeating the names of the objects over and over, and some will talk about grouping like things. A few will make up a story about the items. Tape 10 different items on another board and ask the students to do the same activity but using the specific skill of organizing by type.

4. Level of importance

Put things in a hierarchy according to importance. In psychology, for example, Maslow's hierarchy of needs puts items on a pyramid to help people remember.

5. PQRST

This is a valuable method when reading material such as articles or books. Encourage students to use the PQRST method.

- Preview by looking over the book or article to identify the main parts.
- Question by developing questions to which you want to find answers as you read.
- Read the material carefully.
- State the central idea or theme.
- Test yourself by answering the questions posed prior to reading.

6. Proximity

When you need to recall things in order, think about how some pieces of information relate to others. For example, telephone num-

bers are easier to remember by grouping the digits into sets of three, instead of trying to remember the entire sequence. Sometimes this strategy is called "chunking."

7. Mental imagery

Mental pictures can be used to remember words, faces, pictures, diagrams, and events.

In *The Student Memory Book*, Bill Adler describes a useful technique. Adler encourages students to think in terms of pictures when trying to remember certain facts of history, for example. He refers to this as a "comic book approach." Try to picture the way a historic figure looked, how the person moved and the person's clothes. Then link an action to the person. For example, visualize the winner of the war standing on top of the vanquished foe.

8. Interactive imagery

This technique requires developing a mental picture that combines related items all working together. Combine mental pictures to remember a list.

For example: tomatoes, paper towels, apples, butter, stationery. Picture yourself as the narrator: "As I used a tomato-stained paper towel to pick up apples, I stepped on a butter-stained piece of stationery."

9. Letter association

The old technique of coding numbers is supposed to have been invented in 1634 by the French mathematician Pietro Heugon and then improved by the German mnemonicist Gregor von Feinagle in 1813.

This technique requires some time to learn but can be valuable. It works like this: Take the number, date, or figure you want to remember. Translate it into letters using the following table. Add vowels to make a word. Example: 1603 = T-Ch-S-M, which becomes "Touch Sam." You can then use the phrase to remember the number.

1 = T. Remember the one downward stroke.
2 = N. Remember the two downward stokes.

3 = M. The letter looks like a 3 turned on its side.
4 = R. Remember "r" as the last letter in the word *four*.
5 = L.
6 = Ch or Sh.
7 = K.
8 = F.
9 = P. The letter looks like a reversed 9.
0 = Z or S.

The vowels and *w* and *h* have no value and are inserted simply to make a sound. This converting of numbers into letters also is called "mnemotechnical translation."

10. Peg system

This mnemonic device combines association and imagery. The system works this way:

- Memorize 10 "peg" words. The most common peg words are:

One is bun.	Six is sticks.
Two is shoe.	Seven is heaven.
Three is tree.	Eight is gate.
Four is door.	Nine is line.
Five is hive.	Ten is hen.

- Make a list of 10 other words and number them.
- Link the peg word to the new word using imagery.

For example, if the first word to remember is *bowl*, picture a bun in a bowl. Then if the second word is *desk*, picture a shoe lying on a desk. You will be amazed at how effortless it will be to recall the whole list.

It is interesting to note that some of these peg words are part of the old nursery rhyme that begins: "One, two/Buckle my shoe."

11. Method of loci

Originated by the Greeks, this device combines association and imagery in pairs. A Roman named Simonides, who lived in the fifth

century B.C., is known as the father of trained memory. Simonides, a poet, was speaking at a banquet when he received a message that someone needed to see him outside. While he was out, the roof collapsed, crushing all the people at the banquet beyond recognition. He identified the bodies by remembering the places where the people were sitting and realized this system of remembering mental images of location could be a great memory aid. The word *loci* means places. The Greek word *topo*, or topical, is used for the same system.

To use this technique, choose a place you can walk through in your mind. Your house, for instance: See the entrance door, living room, dining room, kitchen, and so on. When you have a list of things to remember in sequence, put each item in a room and make a dynamic association with that room. If you need to remember subpoints of your sequence, these subpoints may be related to specific things in the rooms.

Another variation is to use a baseball diamond as the focal place with home plate, first, second, and third bases forming the sequence. If you need a longer sequence, include the outfield.

Recently I had to introduce a fellow educator by giving specific biographic details. I used her head, neck, arms, torso, legs, and feet as a sequence to remind me of things about her.

12. Association

Other forms of association can help you remember facts and even improve your spelling.

Want to remember the height of Mt. Fujiyama? It is 12,365 feet. Associate it with the calendar: 12 months and 365 days in a year. Unfortunately, not all associations are this simple. But with "imaginuity," you can create your own.

Correct spelling represents a different problem, but memory methods can apply. One strategy is to use OAR:

- Observe the word using as many of the senses as possible: See the word spelled correctly; break it into syllables; write the word correctly; trace over the letters; say the word aloud.

- Associate the word to its meaning. Look up the word in a dictionary. Find a funny image to associate with the word and the meaning if possible.
- Review the spelling frequently.

Another strategy is to develop a mnemonic that will link to the part of a word that is difficult to spell. For example: The princi*pal* is your *pal*. M. Suid's book, *Demonic Mnemonics: 800 Spelling Tricks for 800 Tricky Words* (1981), is a useful resource:

- Bad gram*mar* will *mar* a report.
- She screamed E-E-E when she passed the ce*me*tery.

13. Relive the moment

Studies have shown that sensory impressions are associated with memory and later help us remember what we have learned. This is one of the simpler ways to recall a name or fact. Try to picture the place where you learned a certain thing, the people who were around you, even the feeling of the seat you sat in. If you want to remember where you left something, mentally retrace your steps.

Remembering Names and Faces

Most of the names you cannot remember really are not forgotten; they were never fully learned in the first place. Remembering names is an important communication tool and is crucial for educators. Use this simple formula when meeting new people and learning new students: Stop, look, listen, link, write.

1. Stop

Before you reach out to shake hands with a new person, think: "I want to remember this person." Focus on the person, not yourself. To clear your mind of other distractions requires confidence in yourself and your appearance. When we forget names within ten seconds of an introduction, it usually is because we are preoccupied with ourselves.

I once was invited to speak to a group on "Humor as Therapy." I noticed a run in my hose; and instead of changing, I went on to the speech. The start was slow, and I had difficulty remembering the punch lines and what I wanted to say. The situation was definitely not humorous. I was worried that someone would notice my hose.

Stopping to concentrate is the first step in remembering.

2. Look

Think: "This person has an interesting face." Take a good look at it. If the person has a name tag, look at the name tag then back to the face. As you listen, look for outstanding visual features that may relate to the name.

When you get student rosters, go over the names and look for those that engender an unusual mind picture that you may be able to relate to the student when you meet him or her. Names like Rose and Lily create mental pictures easily.

When I was in graduate school, I met a dean of students who seemed to be able to call every one of the thousand students by name. He revealed his secret: He reviewed the student's applications with their attached photographs and made associations between the names and faces before the students arrived on campus. When he met the students at orientation, he used the stop-and-look method to remember the names and faces.

3. Listen

Concentrate on hearing the name clearly. If you do not hear the name, repeat what you thought you heard and ask if you are correct. Sometimes, spelling the name helps. Ask: "Do you spell your name R-E-E-D or R-E-A-D?" Then use the person's name in the conversation.

4. Link

A next step is to link a visual image to the name. Develop this link as you are looking and listening. For example:

- Use a similar-sounding word. Begin with the same letter when possible, such as Hugh = huge.
- Use a memorable association, such as a map image for names like North or Eastman, body parts for Earhart or Foote, or flowers for Rose or Lily. You may want to develop prefixes and suffixes with images. For example: Mack truck for Mc- or Mac- beginnings, sunshine for -son endings.
- Break long or difficult names into shorter pieces. The next time you meet a Krulikowski or Papadoupolous, substitute a phrase image: a "cruel cow skiing" for Krulikowski or "papa dropped us" for Papadoupolous.

You may want to develop mental pictures for common name endings like -vich, -stein, -berg, or -ski. A name that ends in -vich may become a picture of a witch. I know a person named Stanojevich; she becomes "standing witch" as my mnemonic. Sometimes the associations will be ridiculous. Some of them you may never want to reveal to the person. But you will remember the name.

Thomas Crook, in *How to Remember Names* (1992), offers a way to visualize names. He presents a picture of Allen. The sound-alike is alien, and so he mentally superimposes the image of an alien on Allen.

5. Write

Carry a small notebook with you and write down the names of people you meet with a note about their appearance, job, or other memorable trait. Exchange business cards when possible.

A friend told me about meeting Bob Graham when Graham was running for his first term as governor of Florida. Graham is noted for remembering the people he meets. Later on, my friend noticed him quietly writing in a notepad. Afterward, she received a letter from Graham saying how happy he was to have met her.

External Memory Strategies

External strategies depend on outside devices to jog the memory. West (1985) believes that many of us are either too lazy or too proud to make the best use of these helps. We forget things because we have not developed our internal strategies and yet do not feel a need to write things down.

Following are five strategies that can be used for recall, retention, a .d learning.

1. Develop a written memory system

Did you make a grocery list and then forget to take it to the store? Educators are inundated by a sea of paper. We have notes reminding us about everything, from changing a student's grade to correcting piles of paper. We receive memos from the principal or the central office telling about meetings or procedures. It is very easy to forget things when the paper demands are many, unless we take command of the paper chase.

Efficiency experts tell us that the use of external memory strategies is crucial to relieve stress and keep from forgetting the things that we must do. Taking time at the beginning of the day to organize is an important step in memory enhancement.

First, go though all the notes you have accumulated on odd slips of paper and those three different calendars and organize all your projects into *one* book. Throw away all others. Several commercial systems are available, such as those from Daytimers, Inc.

Audrey is a guidance counselor who never forgets anything. Her secret is a small black notebook with a page for each day. She has everything in one place. She writes down notes to pick up the laundry, to check on a student she talked with last week, and to record the birthdays of all the teachers she works with. She is never without the book. At the end of the year she files the pages, and they become her official record for mileage, expenses, etc.

2. Take notes

Taking notes will reinforce your internal system. Writing combines focusing attention, using the senses, and responding to visual cues. In my daily appointment book, I have one page in each week where I can take notes on lectures or speeches. If I want to recall an illustration or point of information, I have them in a permanent record.

3. Organize your environment

Some educators appear absent-minded and increase their job stress because their environment is not organized. A well-organized environment is essential to a good memory system.

Have a place for supplies so you can locate things when you need them. You have so much more of value to remember than where the scissors are. Likewise, keep student work in a consistent place.

4. Create memory places

What do you do with your keys when you come into the house? Do you have a specific place for them, or do you spend mental energy looking for them? Make the process automatic. Have one place for the objects you need each day. This strategy is akin to organizing your environment.

A second type of memory place is one set aside for a certain purpose: a special place, such as a hall table, for the variety of "things" that need to be taken to work. Designate a special place for memos or phone messages; try hanging a clipboard in a strategic place. Similar strategies work in the classroom, too. Set aside space on a bulletin board for homework reminders, office notices, and the like.

5. Use object cues

People laugh at the old string-on-the-finger, but it is an effective object cue. Timers, clock alarms, photographs, and wearing your watch backward or on the other arm are examples of cue reminders. Object cues usually stand for specific things.

Deliberately displaced objects, like the watch on the wrong wrist, are handy cues. One teacher told me that his wife places a jar of jam at the foot of the stairs. The unusual placement reminds her of whatever she wants to recall.

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Helping Students Remember

Many of the suggestions for using memory strategies can be adapted for students, as the previous sections demonstrate. Here are some additional points to remember.

Memory systems – the documented ones – date back at least 20 centuries; memory research dates back about 25 years. Only recently have psychologists and educators thought about how we learn and process information. Research on mnemonics in education began in the mid-1960s as the consideration of mental processes gained legitimacy.

Much of the memory research since the 1`70s has shown how not only mnemonics but other internal and external strategies can help students improve their ability to learn and remember. Research supports the following statements about mnemonics:

- The techniques are versatile and the skills can be applied to many subjects.
- Time efficiency saves hours of drudgery.
- Mnemonic skills are adaptable to student differences, thus aiding poor as well as good students.
- Most students enjoy learning mnemonics.
- A teacher does not have to be an expert or design a special course to incorporate the skills into any subject.

The authors of the U.S. Department of Education publication, *What Works: Research About Teaching and Learning* (1986), concluded that mnemonics help students remember more information and retain it longer.

So, if memory is so important, why don't teachers teach it? Several reasons are possible. First, mnemonics never developed as a discipline; thus teachers did not learn it and do not teach it. Also, some of the strategies initially take time to learn; others may not appeal to everyone.

Second, some people think that memory strategies are merely gimmicks. Most memory training materials are written by nonacademic authors. Harry Lorayne and Jerry Lucas, authors of the popular *The Memory Book*, are a case in point. Lorayne dropped out of the first year of high school and Lucas was a professional basketball player. Yet their book is full of practical, commonsense ideas for learning. Only recently have trained psychologists, such as Lapp, West, and Higbee, developed training materials in the area of applied memory.

Third, most school curricula are not organized to work the principles of mnemonics. Instead, they are organized in a lock-step system, where information is taught one sequential piece at a time, rather than linked to other information in an associative manner. Mnemonics requires interrelating materials. Mnemonic strategies can help students learn with the goal of creating permanent, long-term memories.

Two books by Harry Lorayne are especially well-suited for students: *Good Memory – Good Student* (1976) and *Good Memory – Successful Student* (1976). Herold's book, *Memorizing Made Easy* (1982), also is designed for students.

Young Children

Children have lots of fun with memory activities and have no trouble using imagination and forming pictures. For example, they can be taught 10 peg words by adding to the nursery rhyme that begins,

"One two/Buckle my shoe." Teach the children to picture: one-run (someone running), two-shoe, and so on.

Then, they can play an association game. List 10 common items: pencil, thumbtack, paper towel, scissors, etc. Ask them to make a mental picture, such as a thumbtack stuck in a shoe for the second item, thumbtack. Then ask the students to name the listed items in order.

Another old game that children play lets each child add something to a list. "I'm going to the store to get a bottle," says the first. The next one adds to the list: "I'm going to the store to get a bottle and a desk." In this game, linking plays an important role.

Japanese educator Masachika Nakane developed a memory system for learning mathematics. Some Japanese children as young as kindergarten have used mnemonics to do fractions, solve algebraic equations, and do simple calculus. One study found that third-grade students in the United States, by adapting the Japanese techniques, learned to do fractions in three hours, thus equaling the performance of sixth-grade students who had studied fractions in the conventional ways for three years (see Higbee 1988, p. 213).

Mnemonics and Literature

If you want to teach your students the cast of characters in a novel or a play, have them start with the rooms in their house. For King Duncan in *Macbeth*, have the students picture Duncan sitting in the kitchen *dunkin'* doughnuts in his coffee. Place the key characters in other rooms. These mini-stories or scenes make the characters memorable.

Adler suggests an interesting alternative way of remembering dates. Convert the dates to prices. Let's say you want students to remember that the English poet John Masefield was born in 1878. Use $18.78. Add the image of a baseball field with maces instead of bases and suppose that it costs $18.78 for admission to the stadium.

While our goals in education go beyond memorization to understanding, reasoning, and problem solving, any assistance at association will free us – and our students – to spend more time and effort on advanced goals. These strategies are tools to help students go beyond rote learning to long-term, useful memory associations.

31

Don't Be an Absent-Minded Educator

A college professor walking across campus stopped to talk with a student. After they finished, the professor asked, "Which way was I going?"

"That way," pointed the student.

The professor replied, "Good! Then I've already had lunch," and continued on his way.

You don't have to be an absent-minded professor to benefit from enhanced memory strategies. The desire to improve is the first step.

Start by building a checklist of activities to improve your memory skills. Think of specific ways you can incorporate some of the following into your personal checklist of memory-enhancing goals.

- Protect memory by eating a balanced diet and exercising.
- Keep a positive attitude about memory and vow not to belittle your memory.
- Practice paying attention and other internal memory strategies.
- Develop a verbal elaboration system in your discipline and teach it to your students.
- Use the PQRST method the next time you read several professional articles.
- Work up a system for remembering telephone numbers by chunking.
- Use the Stop-Look-Listen method for remembering the names of new people.

- Work on external strategies, like systematic note-taking.
- Organize your home and office.
- Develop memory places.

Remember, there are no poor memories, only poor memory systems.

33

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George H. Reavis (1883-1970) entered the education profession after graduating from Warrensburg Missouri State Teachers College in 1906 and the University of Missouri in 1911. He went on to earn an M.A. and a Ph.D. at Columbia University. Dr. Reavis served as assistant superintendent of schools in Maryland and dean of the College of Arts and Sciences and the School of Education at the University of Pittsburgh. In 1929 he was appointed director of instruction for the Ohio State Department of Education. But it was as assistant superintendent for curriculum and instruction in the Cincinnati public schools (1939-48) that he rose to national prominence.

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